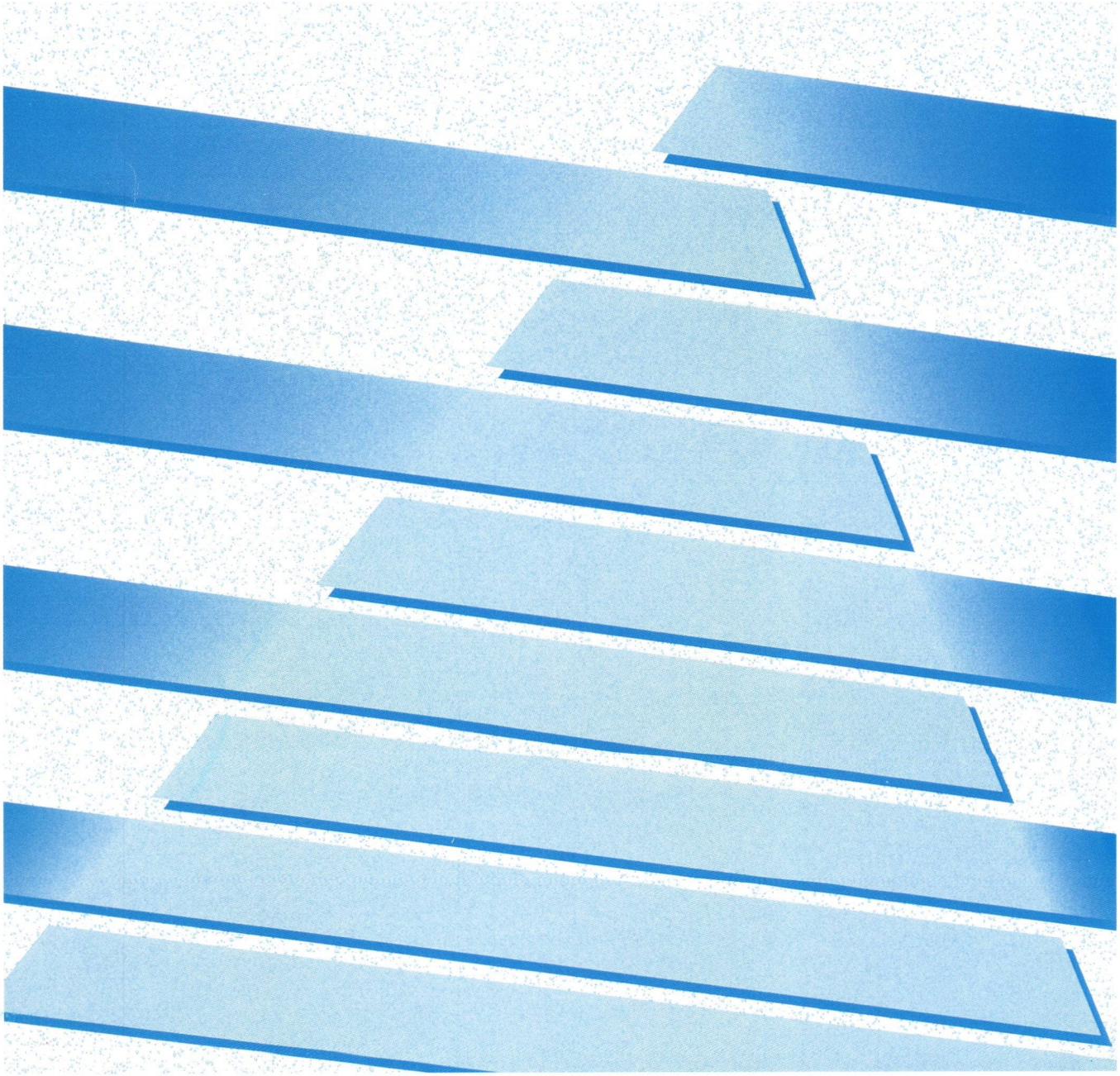
ALLEN-BRADLEY

# ControlView™ Trending

(Cat. No. 6190-TND)

User Manual



## Important User Information

Because of the variety of uses for the products described in this publication, those responsible for the application and use of this control equipment must satisfy themselves that all necessary steps have been taken to assure that each application and use meets all performance and safety requirements, including any applicable laws, regulations, codes and standards.

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, the Allen-Bradley Company, Inc. does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley Publication SGI-1.1, "Safety Guidelines for the Application, Installation and Maintenance of Solid State Control" (available from your local Allen-Bradley office) describes some important differences between solid-state equipment and electromechanical devices which should be taken into consideration when applying products such as those described in this publication.



Throughout this manual we use notes to make you aware of safety considerations:

**ATTENTION:** Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss.

Attentions help you:

- identify a hazard
- avoid the hazard
- recognize the consequences

**Important:** Identifies information that is especially important for successful application and understanding of the product.

# Summary of Changes

## Changes from Release 2.0 to 3.0

The following changes have been made to the Trending option and the Trending User Manual since release 2.0:

| For information on this new feature: | Refer to: | The feature appeared in: |
|---|---|---|
| Installation instructions for the Trending option have been moved to the *ControlView Installation Manual.* | ControlView Installation Manual | software release 3.0 |
| Configure a pen legend display at the bottom of the trend window to identify the pens | Chapter 1, Chapter 2 | software release 3.0 |
| Specify the size of the pen legend display, with the /l parameter in the PLOT command | Appendix A | software release 3.0 |
| Specify an interval, with the /i parameter in the PLOT command | Appendix A | software release 2.12 |
| Freeze the logged data that is available to the trend display, with the /f parameter in the PLOT command | Appendix A | software release 2.12 |
| Specify a start time, with the /start parameter in the PLOT command | Appendix A | software release 2.11 |
| Specify a filename in the TREND command | Appendix A | software release 2.11 |

# Preface

## How To Use This Manual

This manual describes the features and capabilities of the Trending option, a component of the ControlView™ system.

This manual supplements the information in the *ControlView Core User Manual*. It contains information on:

- trending concepts
- trending commands and how to use them

### Conventions Used in This Manual

This manual follows the print conventions outlined in the *ControlView Core User Manual*.

### Audience

The Trending software is a part of ControlView, and therefore you should be familiar with ControlView and have the *ControlView Core User Manual* available for reference. A complete list of related publications is contained in that manual.

# Table of Contents

Chapter 1

# Introduction

A trend display is a visual representation of real time or historical tag values. The display, graphed as a time or an x/y plot, allows you to keep track of plant activity as it's happening. When used with Data Logger files, it also provides an historical frame of reference for real time plant activity.

## Summary of Trending Features

The Trending option offers a wide variety of features:

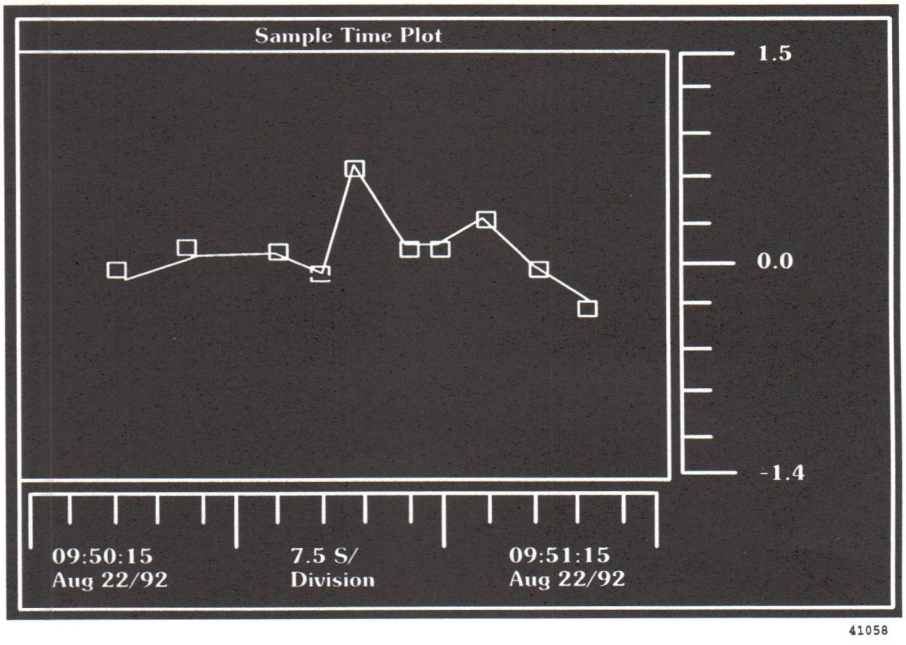
- trend displays can show changes in tag values or show the relationship between them
- as many as sixteen tags can be plotted at one time
- historical or real time data can be plotted
- trend displays with several plotted lines can be divided into two, three or four different subplots
- colored pens used to create the graphs can be plotted as lines, or a series of points and areas between pens can be shaded for emphasis
- trend displays can be scaled to show more or less detail

## Trending Concepts

A trend display is an on-screen graph that can plot up to sixteen varying tag values over a period of time. There are two types of plots: time plots and x/y plots.

- A *time plot* shows how a tag's value changes over time. In Figure 1.1 time is displayed on the X axis as the independent variable.

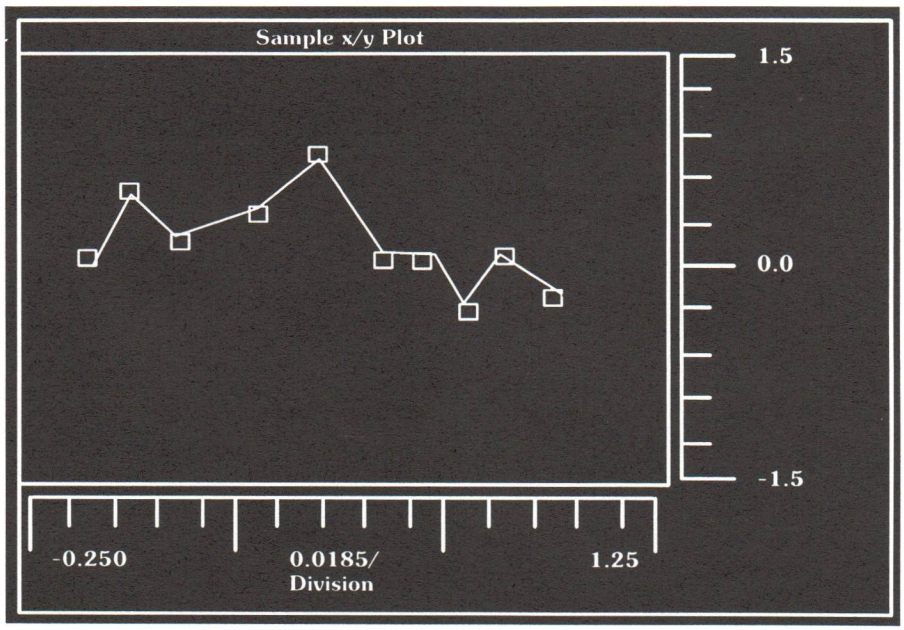
**Figure 1.1**
**A Time Plot**




- An *x/y plot* shows the relationship between two tag values, such as temperature and pressure.

  With a basic x/y plot, (Figure 1.2) you specify one tag as the independent variable and the second tag as the dependent variable. For a more complex plot, you can specify one tag as the independent variable and up to sixteen other tags as dependent. Note that the independent variable is on the x axis; the dependent variable on the y axis.

**Figure 1.2**
**An x/y Plot**




## Data Sources

Data for a trend display comes from either the Current Value Database (CVD) or a log file created by the Data Logger option.

## Real Time and Historical Displays

A graph based on the current value database shows real time values. As the most recent values are plotted, older values scroll off the screen.

When you use Data Logger files as the source, the values from the file are plotted on the screen. A graph based on Data Logger files is usually a historical display. However, if you set your Data Logging and Trending accordingly, you can plot real time graphs from Data Logger files. To do this, you plot the values on the screen while Data Logger is writing to the log files.

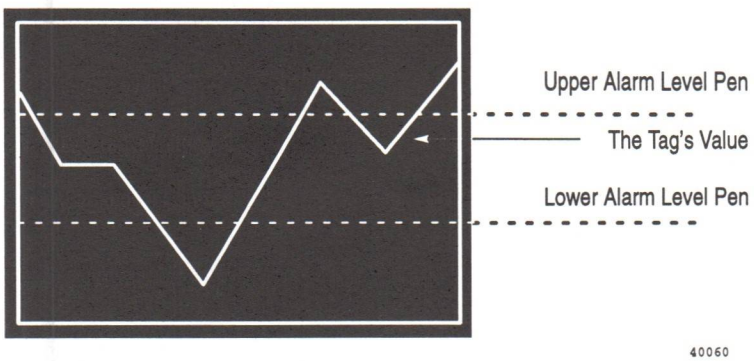
## Pens

For each graph line or set of points, you must define a pen.

To define a pen, you specify the tag you wish to monitor, the color to use on the graph and the scale, along with a host of other details.

To show a constant value — such as a tag's alarm points — define one pen for each, as illustrated in Figure 1.3.

**Figure 1.3**
**A Tag Value and Two Alarm Levels**




## Pen Legend Display

You can insert a pen legend display at the bottom of the trend window to identify the type of data that is being drawn by each pen. You can specify between 3 and 16 lines for the display and identify the pens with their tag name, their tag description, or their pen description. Increasing the size of the pen legend display compresses the size of the graph.

**Figure 1.4**
**A Time Plot With Pen Legend Display**

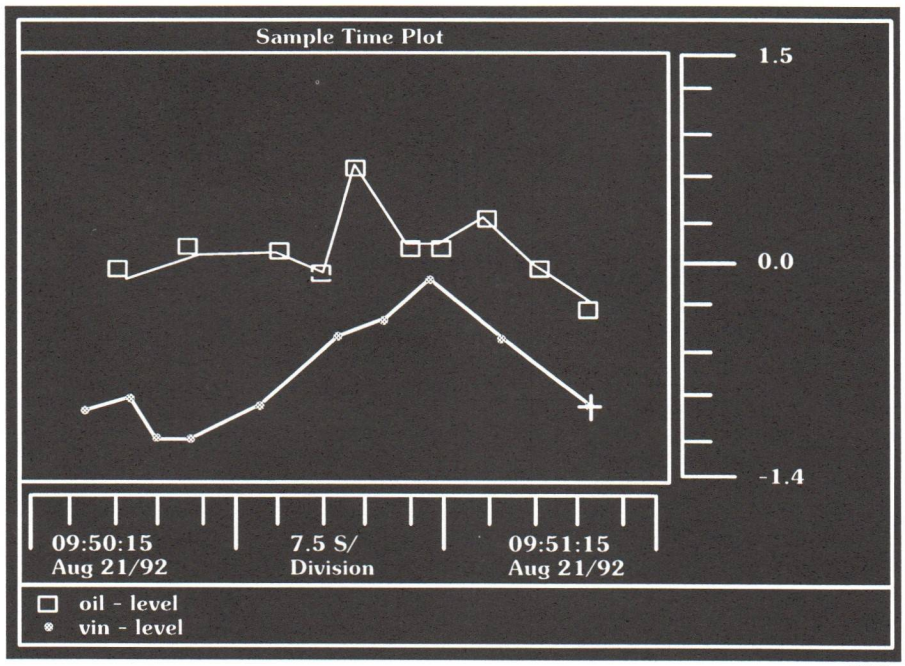
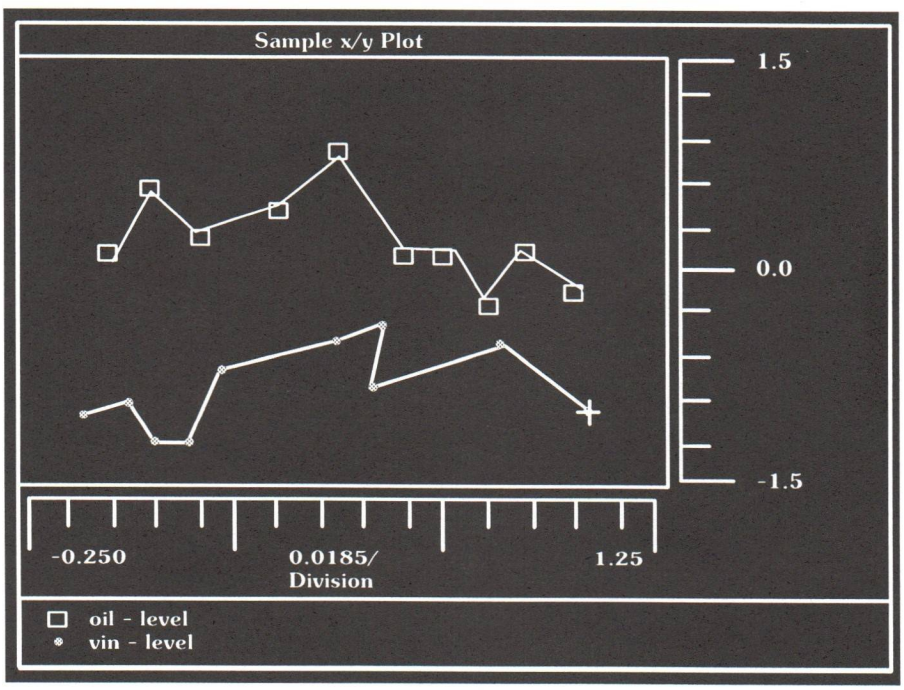


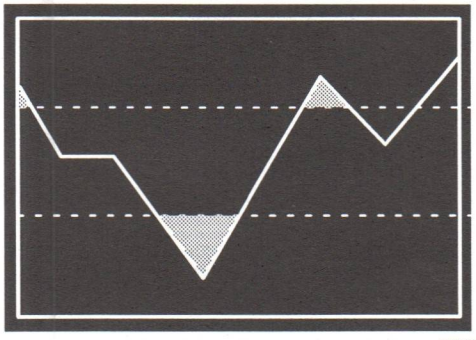

**Figure 1.5**
**An x/y Plot With Pen Legend Display**



## Shading

You can shade part of a graph for emphasis. The diagram below calls attention to tag values that are in alarm. The alarm values are plotted on the graph, and shaded where the tag's value exceeds the alarm value.

**Figure 1.6**
**A Plot With Shading**



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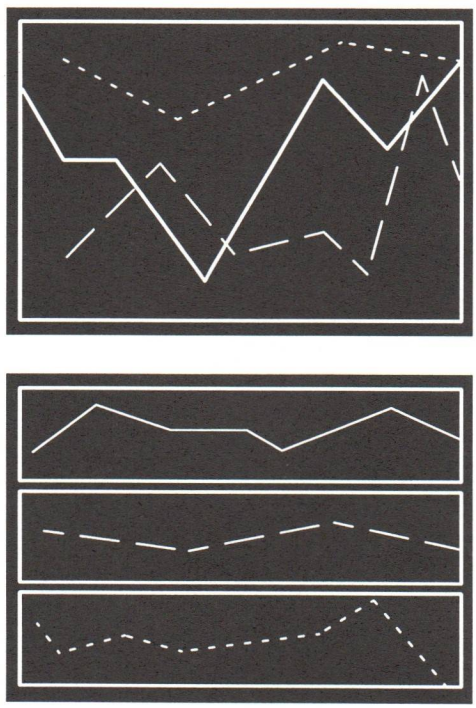
## Subplots

Too many lines on one display can be difficult to read. You can divide a complex graph into two, three, or four mini-graphs called subplots. All subplots share the same x axis while each subplot has its own y axis.

**Figure 1.7**
**A Single Plot vs Subplots**



One Trend Display
with three pens.

Three subplots in
one Trend Display.

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Chapter 2

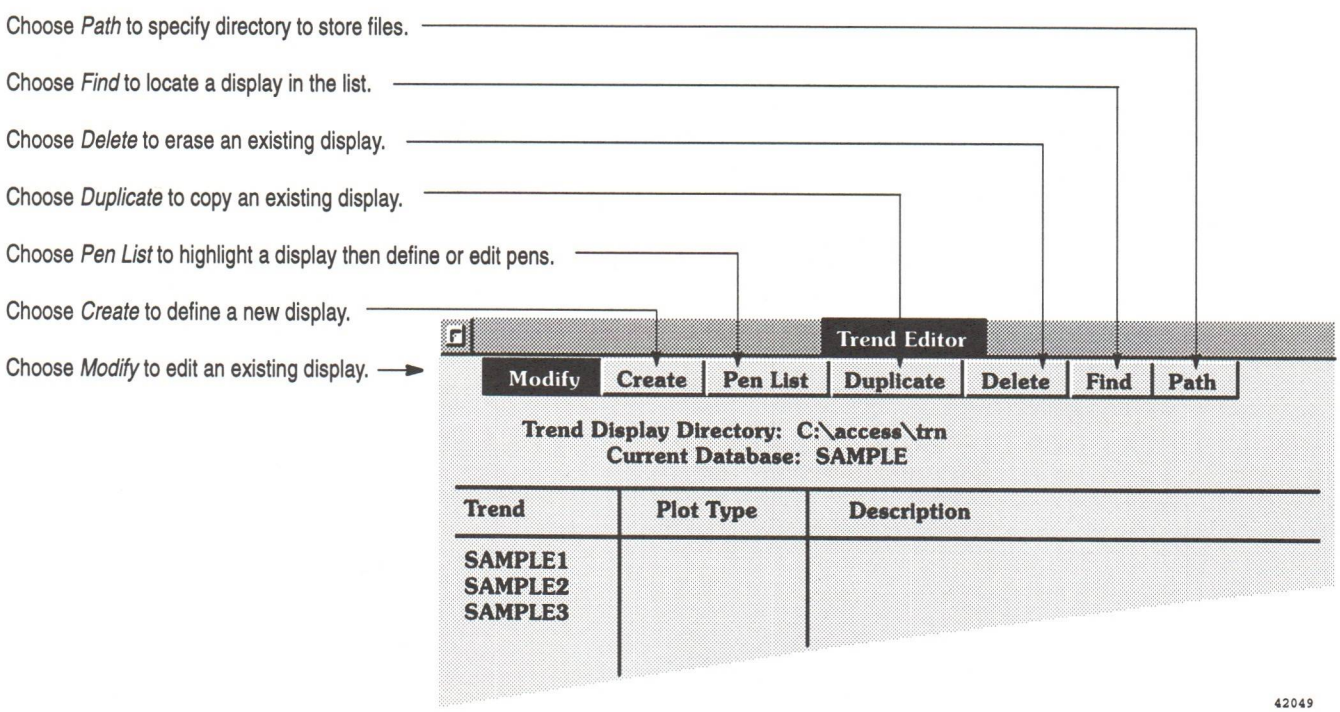
# Defining a Trend Display

This chapter describes how to define a trend display using the Trend Editor. The definition for the display is stored in a disk file.

## The Trend Editor

To access the Editor, choose *Edit Trend Display* under Screens in the Setup Menu. The following window will appear.

**Figure 2.1**
**Trend Editor**

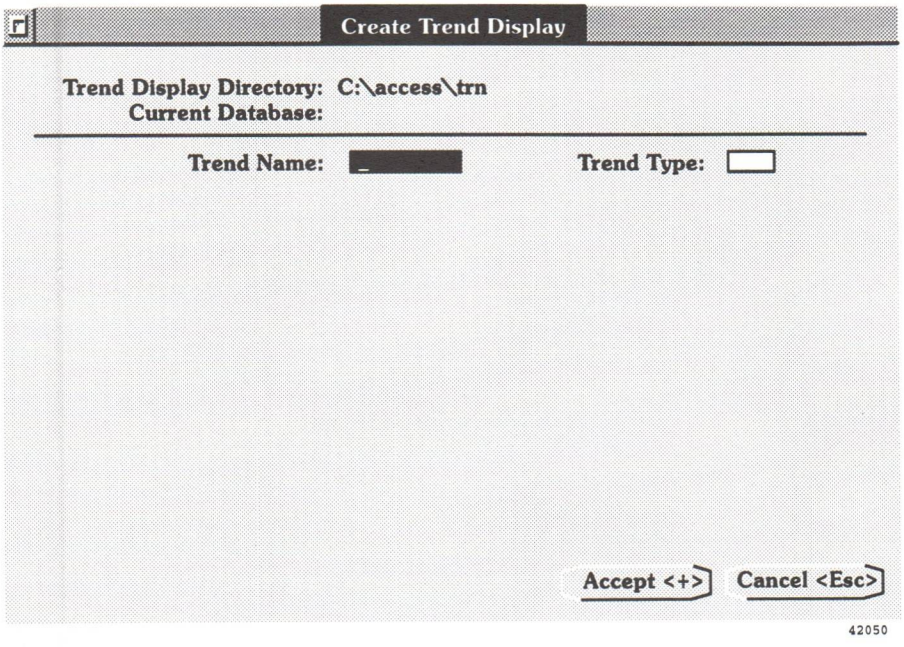



The following describes the various actions in the Trend Editor and illustrates the windows they open.

### Create

Choose *Create* to define a new trend display. The Create Trend Display window appears.

**Figure 2.2**
**Create Trend Display Window**




In this window, type in a name for the trend; it can have up to eight characters. Move to the *Trend Type* field and press **Enter** to choose between x/y or time graphs. Choose *Accept* to complete the action.

Depending on the plot type you have specified, the Define *Time* Trend Display window or the Define *x/y* Trend Display window will appear next. (See Figure 2.5). It is within one of these two windows that the parameters of the display are actually defined or modified. How to do it is discussed later in this chapter.

## Modify

To edit a trend display, highlight the name of the display in the list and choose *Modify*. The Define (Time or x/y) Trend Display window will open. (See Figure 2.5).

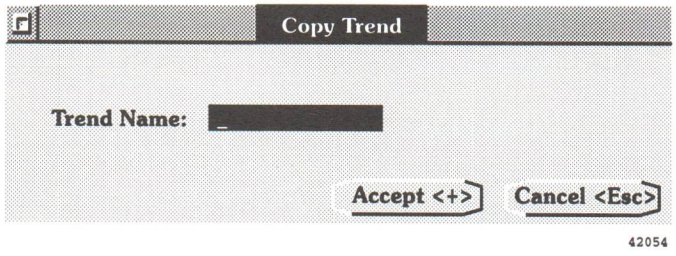
## Pen List

A pen must be defined for each plotted tag. Each display has a list of pens. Before creating a pen list for your display, you first define the trend display itself. See details on defining trend displays and pens later in this chapter.

## Duplicate

To copy an existing trend display, highlight its name and choose *Duplicate.* Type the name of the copy in the name field provided and choose *Accept* to complete your action.

**Figure 2.3**
**Copy Trend Window**




## Delete

To remove an existing trend display, highlight its name and choose *Delete.*

## Find

It is faster to use the *Find* option to locate a specific display than to scroll through a long list. Choose *Find* from the menu, type the first few letters of the display name and choose *Accept.*

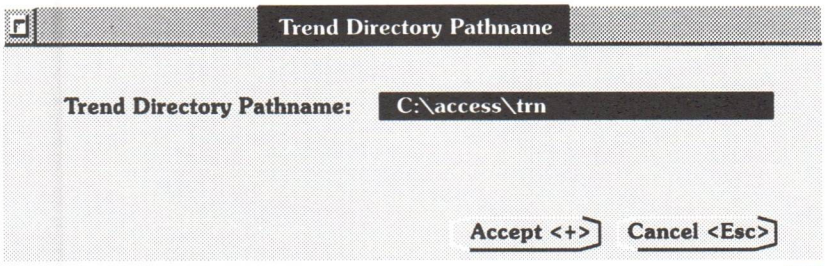
## Path

Trend display files are normally stored in the C:\ACCESS\TRN directory, where C is the drive where ControlView is installed.

**Important:** Whenever you configure a pathname, be sure to start with the drive letter. This is absolutely essential when running ControlView in a multi-drive environment.

To change directories choose *Path.* The following window will open.

**Figure 2.4**
**Trend Directory Pathname Window**




## Defining a Trend Display

Once you have created a trend display, or chosen *Modify* from the Trend Editor menu, you can edit the trend's definition.

Depending on the type of trend display you are defining, this window is called Define Time Trend Display or Define x/y Trend Display. Except for slight differences related to display type, the field descriptions are identical for both windows.

**Figure 2.5**
**Define Time Trend Display Window**

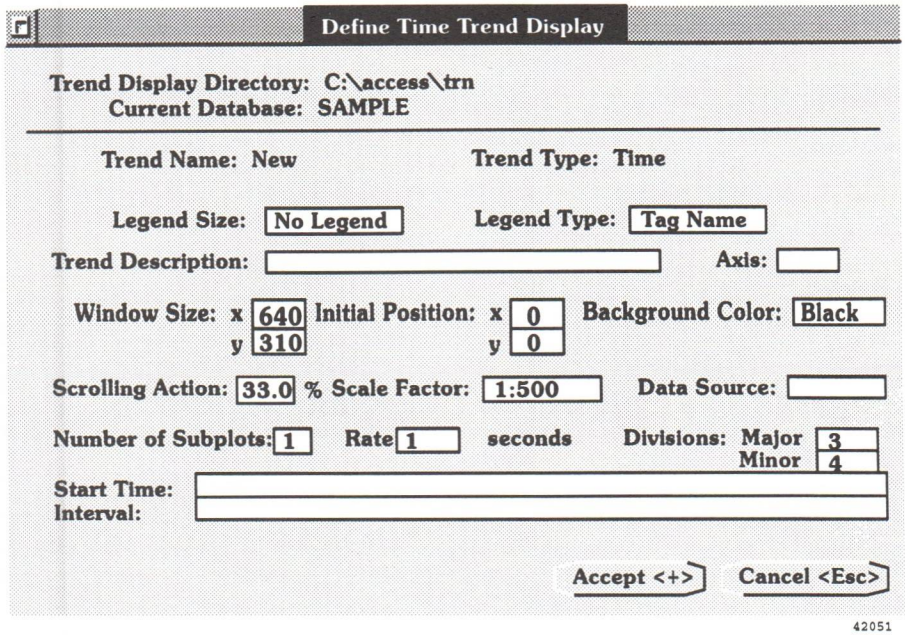
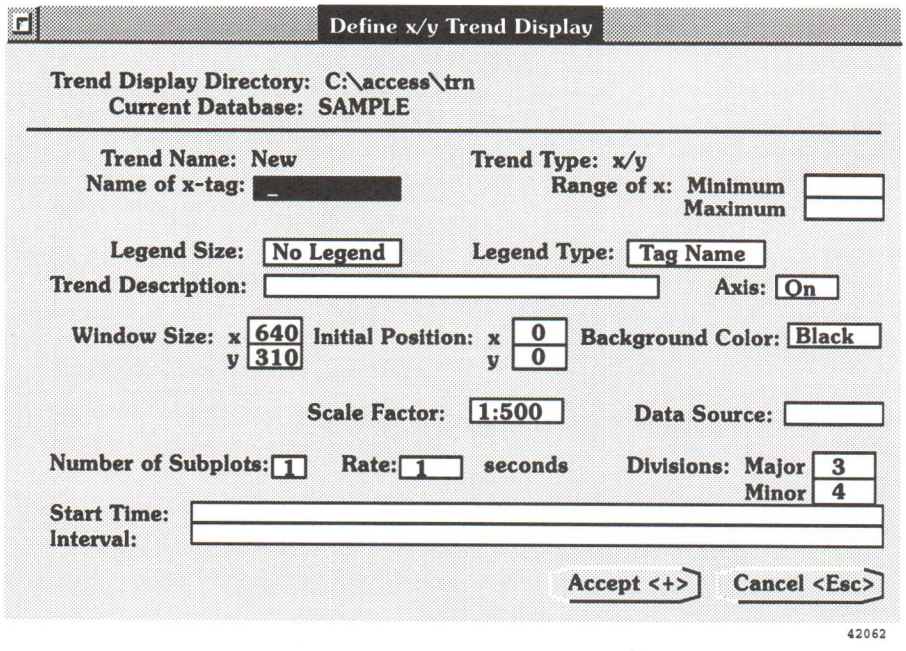


**Figure 2.6**
**Define x/y Trend Display Window**




- Name of x-tag

  The *Name of x-tag* field is found only on the Define x/y Trend Display.

  Type in the name of an analog tag that will be used as the independent variable and plotted along the x axis.

  **Important:** Remember to use an analog tag for the x axis.

- Range of x

  The *Range of x* fields are only found on the Define x/y Trend Display window.

  Enter the minimum and maximum values you want for the x-tag. These values appear as the left and right limits for the scale on the x axis. If you leave these fields blank, the minimum and maximum values from the tag's definition in the database are used.

  At runtime, if the minimum to maximum range is too large or small, you can zoom the display in or out.

  **Important:** The x tag's value will be stored in memory but not plotted if it falls outside the minimum and maximum display range.

- Legend Size

  Specify the height of the pen legend display to be located at the bottom of the trend window. Valid values are in the range 3 - 16 lines.

  If there is enough space, depending on the length of the pen descriptions, each line can display more than one pen. The display area must be a minimum of 3 lines high.

  Enter *No Legend* if you don't want to display the pen legend.

- Legend Type

  Specify the way each pen will be identified in the pen legend display. Choose Tag Name, Tag Description, or Pen Description. This identifying information will be displayed beside each pen symbol.

- Trend Description

  Type in a description of the Trend Display.

  The Trend Description documents the function of the trend display. More importantly, it is the title of the display when the graph is plotted.

- Axis

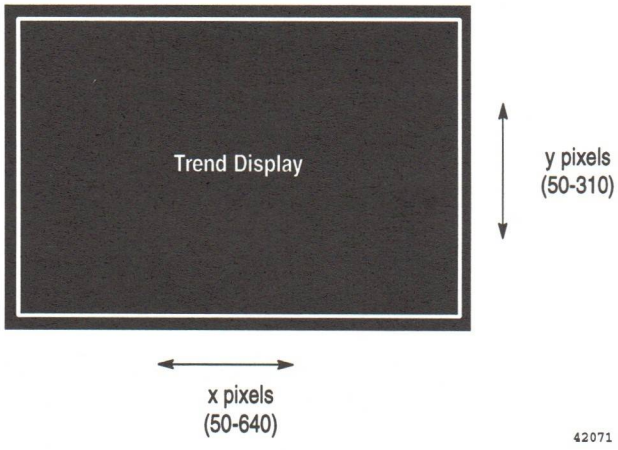
  Choose *On* or *Off* to specify whether the x/y axis will be shown. This also determines whether the data window and the pen legend display will be shown.

- Window Size

  Specify the size (in pixels) of the window that will display the graph. (See Figure 2.7)

  The default window size is x=640, y=310

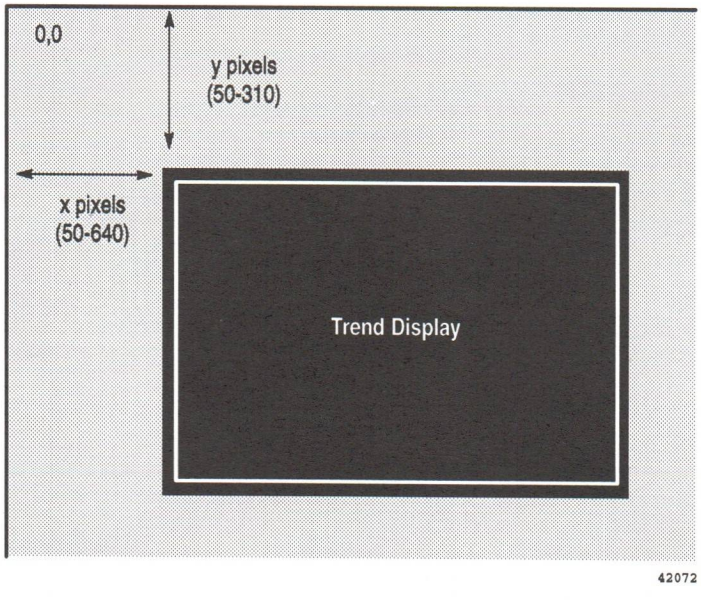
**Figure 2.7**
**Trend Display Size**




- Initial Position

  This field allows you to set the x and y position of the window on the screen, relative to the top left corner.

**Figure 2.8**
**The x and y Position of the Display**




**Important:** The editor doesn't let you specify a position that would force part of the display off the edge of the screen.

- Background Color

  Specify the background color for the display in this field. Press **Enter** to see the available list of colors.

  **Important:** The x axis is always white, so don't use white as a background color.

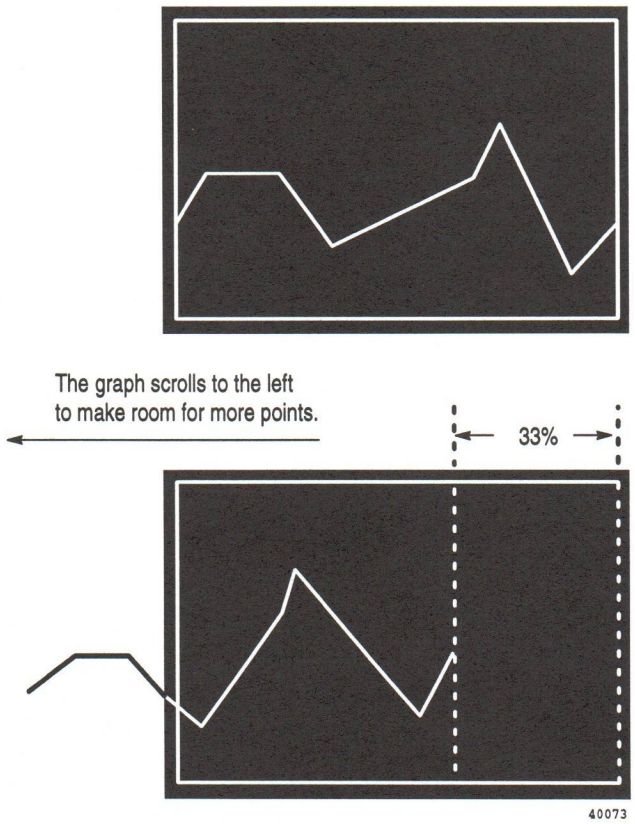
- Scrolling Action

  The *Scrolling Action* field is found only on the Define Time Trend Display window.

  A real time Trend Display plots from the left to the right until the display is full. Then the screen scrolls to the left.

  In the Scrolling Action field, type in a percentage to specify how far you want the graph to scroll when the graph has filled the window. For example, if you specify 100%, the entire window clears and the new values will begin plotting on the left side of the window. The default setting for this field is 33% as illustrated in Figure 2.9.

**Figure 2.9**
**Display Scrolling of 33%**




- Scale Factor

  At runtime, you can zoom in or out along either axis to see more or less detail. The scale factor sets the zoom increments.

  Type in a number between 1 and 100. For most purposes, a number between 1.5 and 10 gives the best results. The default is 1.5. Using 1 causes no zooming.

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### Example: Scale Factor

If the x-axis displays 60 seconds worth of data and you set the Scale Factor to 2, the x-axis would display 30 seconds of data when you zoom in along the x-axis.

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- Data Source

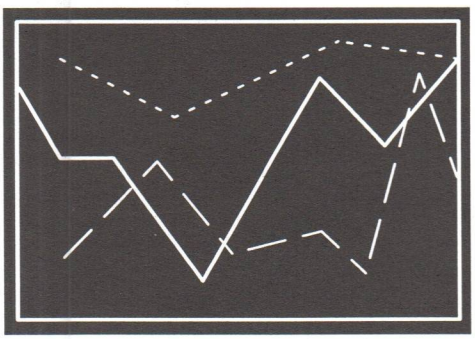
  To retrieve data from a log file, type in the name of the Data Logger file set you want to plot, or leave the field blank to retrieve data from the current value database (a real time trend).

- Number of Subplots

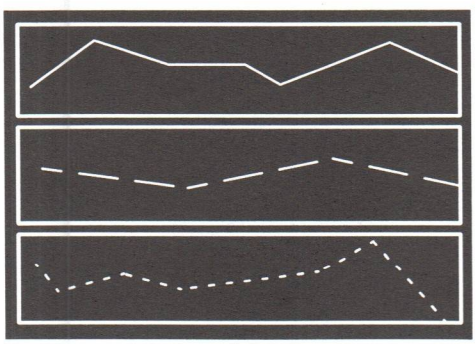
  Use this field to specify the number of subplots you wish to display by typing in the number of your choice. Subplots share the same x axis, and each subplot has its own y axis.

  **Important:** To use a trend display without subplots, set the number of subplots to 1.

**Figure 2.10**
**Subplots**



One Trend Display with three pens.



Three subplots in one Trend Display.

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- Rate

  Whether you are viewing data from the database or from a Data Logger file set, the *Rate* field specifies the frequency with which the trend display is updated.

  - When the data comes from the current value database, this field determines how often the database data is read.

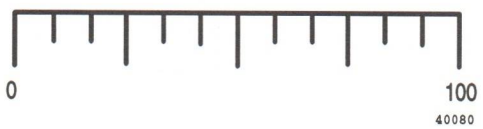
- When the data comes from a Data Logger file set, the data in the file set is plotted at once. Then the files are periodically checked for new data. The Rate field sets how often the file will be checked.

The rate can be set anywhere from 1 to 32767 seconds. However, the overall performance of the system improves with a slower rate.

- Divisions

Specify the number of major and minor division markings you want displayed on the x axis. The setting determines the number of spaces, not marks, on the axis. Keep the number small so you can see the divisions on the screen.

**Figure 2.11**
**An Axis With 4 Major and 3 Minor Divisions**




- Start Time and Date

Start times can be defined as absolute or relative.

- Absolute time includes the month, day, year, hour, minute and second. For example you could specify that Trending start Oct 19 1992 13:20. Until you change this time and date, the trend display will always plot tag values from the start time specified in this field. The format for the time is MMM DD YYYY hh:mm.

  Where:

  | | |
  |---|---|
  | MMM | is the abbreviation for the month |
  | DD | is the date |
  | YYYY | is the year |
  | hh:mm | is the time |

- Relative time is specified with the word NOW or, for historical data, NOW minus (–) the hour, minute or second, indicating when you want the display to start plotting. This time specification will always start the plotting relative to whatever time of day you are using the trend display.

- Time Trend Start Time

  For real time data, type the word NOW as the start time. The trend display begins plotting data as soon as it is run.

  To plot historical data, type an absolute time or NOW minus (–) hours, minutes and seconds to define how far back in history you want the trend to start displaying data. Only use this format when plotting from Data Logger files.

  You can type the word NOW as the start time if you are actively logging a particular Data Log model and you wish to retrieve data from it. This allows you to plot data as it comes in (real time).

- x/y Trend Start Time

  As with the time display, type NOW for the start time when dealing with real time data. For historical data, type in an absolute time and date from which the data should be displayed.

- Interval

  The Interval field determines the time span of the X axis.

  Specify the interval in seconds (SEC), minutes (MIN), hours (HOUR), days (DAY), or weeks (WEEK).

The Start Time and Interval together determine how many points are plotted on the X axis.

With an x/y trend display, one or thousands of points may be generated, depending on how often the data is read or the number of points recorded in the log file.

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### Example: Interval and Start Time

To plot real time data in a 30 second window, specify
the *Start Time* as `NOW`
and the *Interval* as `30 SEC`

To plot the last ten minutes of historical data, specify
the *Start Time* as `NOW - 10 MIN`
and the *Interval* as `10 MIN`

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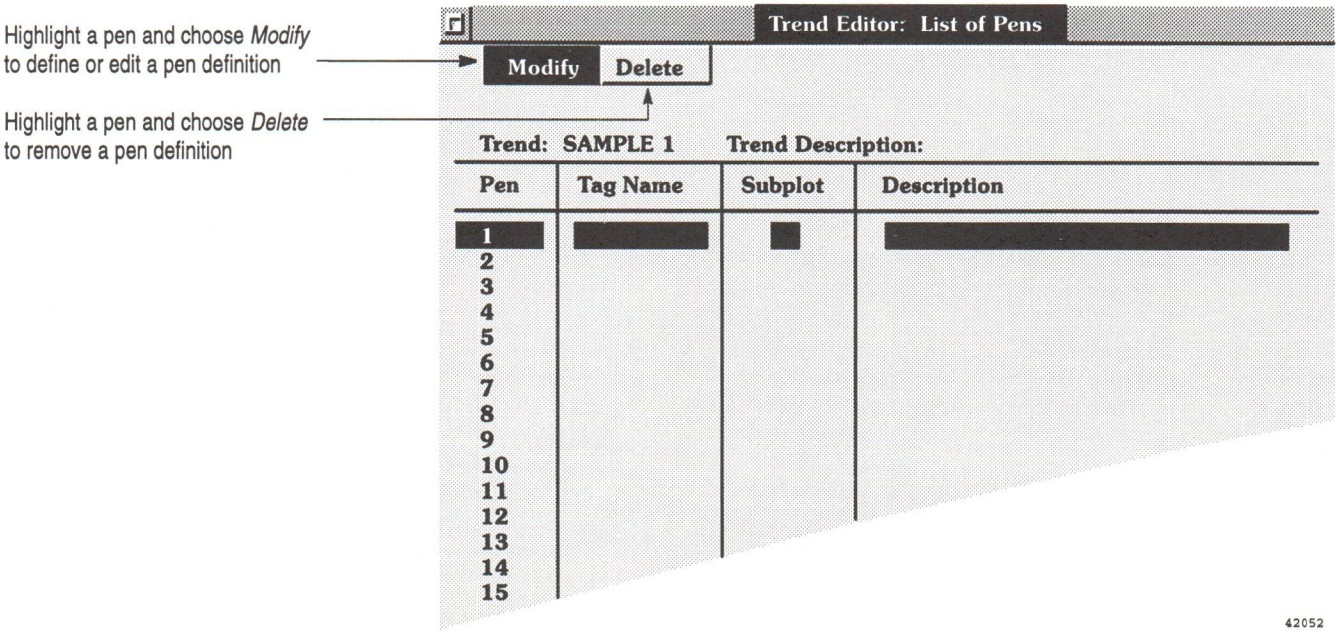
## The Pen List

At least one pen must be defined for every graph.

To define a pen list, highlight the trend display and choose *Pen List* from the Trend Editor menu. The following window appears:

**Figure 2.12**
**Trend Editor: List of Pens Window**

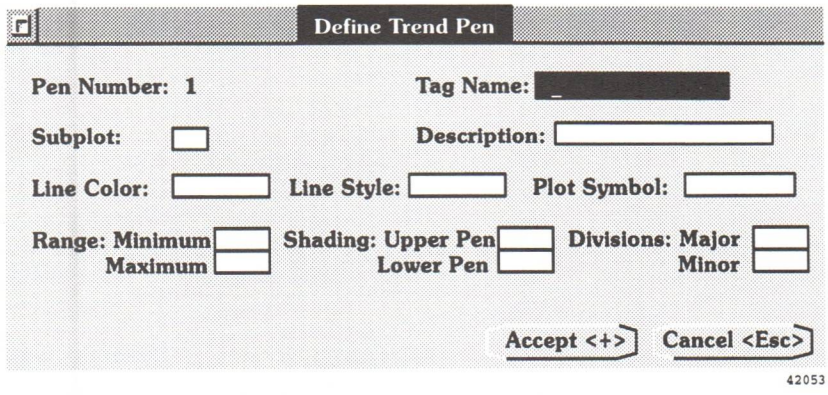



The menu options on this window allow you to modify or delete pen definitions.

## Defining a Pen

To define a pen, highlight one of the sixteen pen numbers in the Trend Editor List of Pens, and choose *Modify*. The Define Trend Pen window opens.

**Figure 2.13**
**Define Trend Pen Window**




Pens can be defined in any sequence, so if you are defining only one, you can specify any of the sixteen available pen numbers.

- Tag Name

  Type the name of any analog or digital tag in this field. The values for this tag will be the y — or dependent — values on the graph.

  To set the y value as a constant, horizontal line on the graph, type in a number instead of a tag name. This number must be within the minimum and maximum range that you define.

  **Important:** Analog and digital pens can be used together on the same trend display.

- Subplot

  If you are showing the trend in subplots, name the subplot in which this particular pen will appear.

  Subplots are displayed top to bottom, with #1 at the top.

- Description

  Type the pen description in this field. It may be displayed in the pen legend.

- Line Color

  Specify the color you want for the line and plot symbols. Press **Enter** to see a list of all available colors.

  **Important:** Don't choose the same line color as your background.

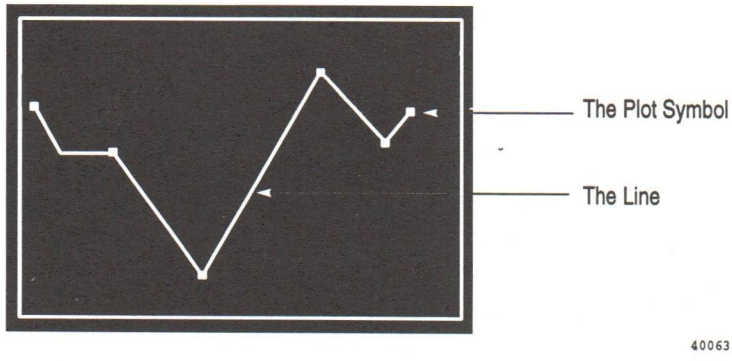
- Line Style

  Specify *Visible* or *Invisible*. If you only want plot symbols displayed — in a scatter graph for example — then specify *Invisible*.

- Plot Symbol

  With the cursor in the *Plot Symbol* field, press **Enter** to see a list of available plot symbols. Choose the symbol you want to use. If you want a clean line with no plot symbols, leave the field blank.

**Figure 2.14**
**A Line Plotted With Symbols**




- Range

  Type in the minimum and maximum range for the display. These values appear as the upper and lower limits for the scale on the y axis.

  If you leave these fields blank, the values are set from the tag's minimum and maximum fields in the database.

  **Important:** The tag's value will be stored in memory but not plotted, if it falls outside the minimum/maximum range. If the tag has a communication error, the trend will stop plotting.

  For a constant, the minimum and maximum values default to 0 and 100 respectively.

  It is advisable to define all pens for each subplot with the same minimum and maximum values so you can see the relationship between each tag value. However, if you have reason to do so, you can specify different ranges for each pen.

- Shading

  To highlight certain values, you can shade the area between two pens. A shaded area must have at least two pens defined.

  To create shading, specify the numbers of either or both of the upper or lower pens that are already defined. When the pen you are defining plots above the upper pen or below the lower pen, the area between them will be shaded. The shading color will be the color of the pen you are defining.

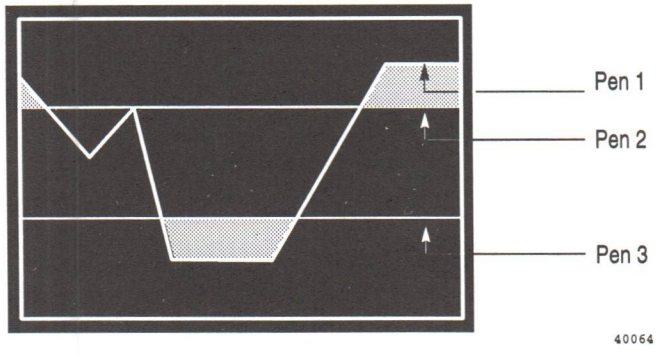
  **Important:** Shading is determined by the position of lines on the screen — *not* by the actual tag values. This is important if you've specified different minimum and maximum values for the pens.

---

## Examples: Shading With Three Pens

Shading with three pens: the upper pen, Pen 2, has a constant value of 75 and the lower pen, Pen 3, has a constant value of 25. Pen 1 represents the tag called VIN_LEVEL. The graph will be shaded whenever Pen 1 goes above Pen 2 or below Pen 3. A plot for this graph could look like this:

**Figure 2.15**
**Shading With Three Pens**




To produce the shading shown in Figure 2.15, use the Define Trend Pen window to define Pen 1, Pen 2, and Pen 3 with the following field settings:

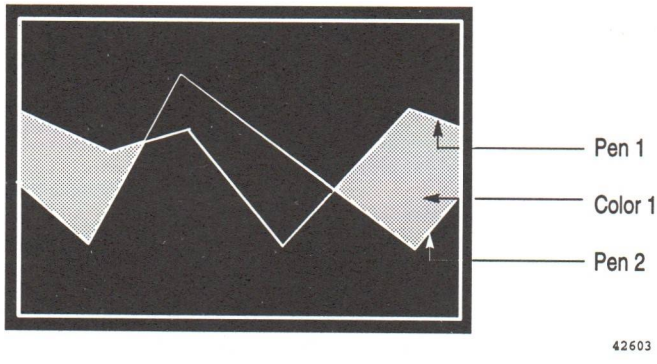
| Pen | Tag Name | Shading | |
|---|---|---|---|
| | | Upper Pen | Lower Pen |
| Pen 1 | VIN_LEVEL | 2 | 3 |
| Pen 2 | 75 | | |
| Pen 3 | 25 | | |

---

## Examples: Shading With Two Pens

Shading with two pens: whenever Pen 1 goes above Pen 2, the graph will be shaded as illustrated:

**Figure 2.16**
**Shading With Two Pens**



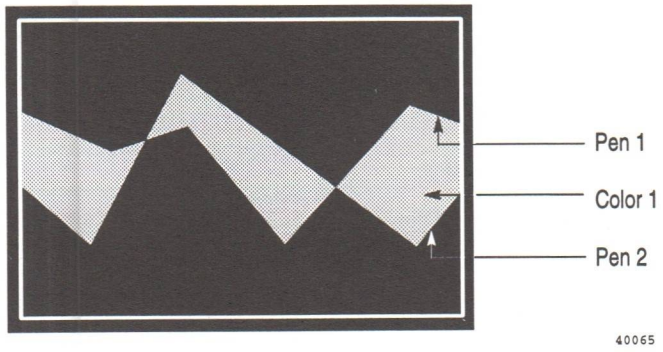

To produce the shading shown in Figure 2.16, use the Define Trend Pen window to define Pen 1 and Pen 2 with the following field settings:

| Pen | Tag Name | Shading | |
|---|---|---|---|
| | | Upper Pen | Lower Pen |
| Pen 1 | VIN_LEVEL | 2 | |
| Pen 2 | OIL_LEVEL | | |

## Examples: Shading Between Two Pens

Shading with two pens: whenever Pen 1 goes above or below Pen 2, the graph will be shaded as illustrated.

**Figure 2.17**
**Shading Between Two Pens**




To produce the shading shown in Figure 2.17, use the Define Trend Pen window to define Pen 1 and Pen 2 with the following field settings:

| Pen | Tag Name | Shading | |
|---|---|---|---|
| | | Upper Pen | Lower Pen |
| Pen 1 | VIN_LEVEL | 2 | 2 |
| Pen 2 | OIL_LEVEL | | |

- Divisions

  Specify the number of major and minor divisions you want marked on the vertical axis. The marks between each major division and the end points on the axis are numbered. Keep the number of major and minor divisions small.

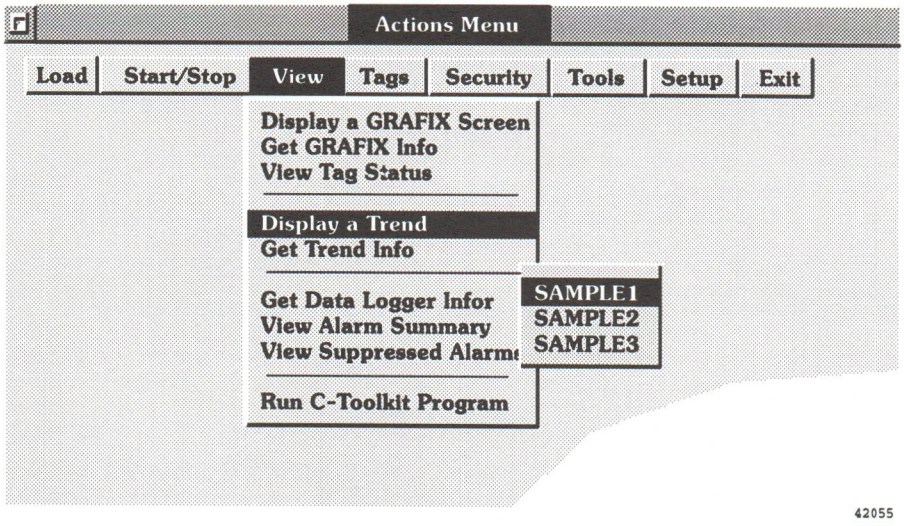
Chapter 3

# Plotting a Trend Display

## Calling up a Trend Display

To call up a trend display, choose *Display a Trend* under View in the Actions Menu. If data for the display is coming from the current value database, make sure that the database is already loaded before calling up the display.

**Figure 3.1**
**Calling up a Trend Display**




Alternately, you can choose *Get Trend Info* to open a window listing the trend displays and their description.

Examples of a time trend display and an x/y trend display are illustrated in Figure 3.2 and Figure 3.3. The x/y display uses invisible lines so only the plot symbols are displayed.

## Controlling a Trend Display

At run time, you can control the appearance of a trend display in a number of ways. You can shift the graph left or right, up or down to view an off-screen segment. You can also zoom in on a section of the graph to see more detail, and zoom out again for an overview. Finally, you can display information about any of the points on the graph.

The keys used to manipulate displays are illustrated at the end of this chapter. First, a discussion of the available options.

## The Cursor

The cursor is a cross shape that sits overtop a point. When the cursor is on, you can select any point on the graph and display details about it in the data window at the bottom left corner of the screen. The pen legend display, if configured, slides over to the right to make room for the data window.

Use the **Ins** key to turn the cursor on and off.

**Important:** If the cursor is off, keypad commands affect the entire graph rather than one specific pen. When a display is first loaded, the cursor is off and the data window is empty.

**Figure 3.2**
**A Time Trend Display**

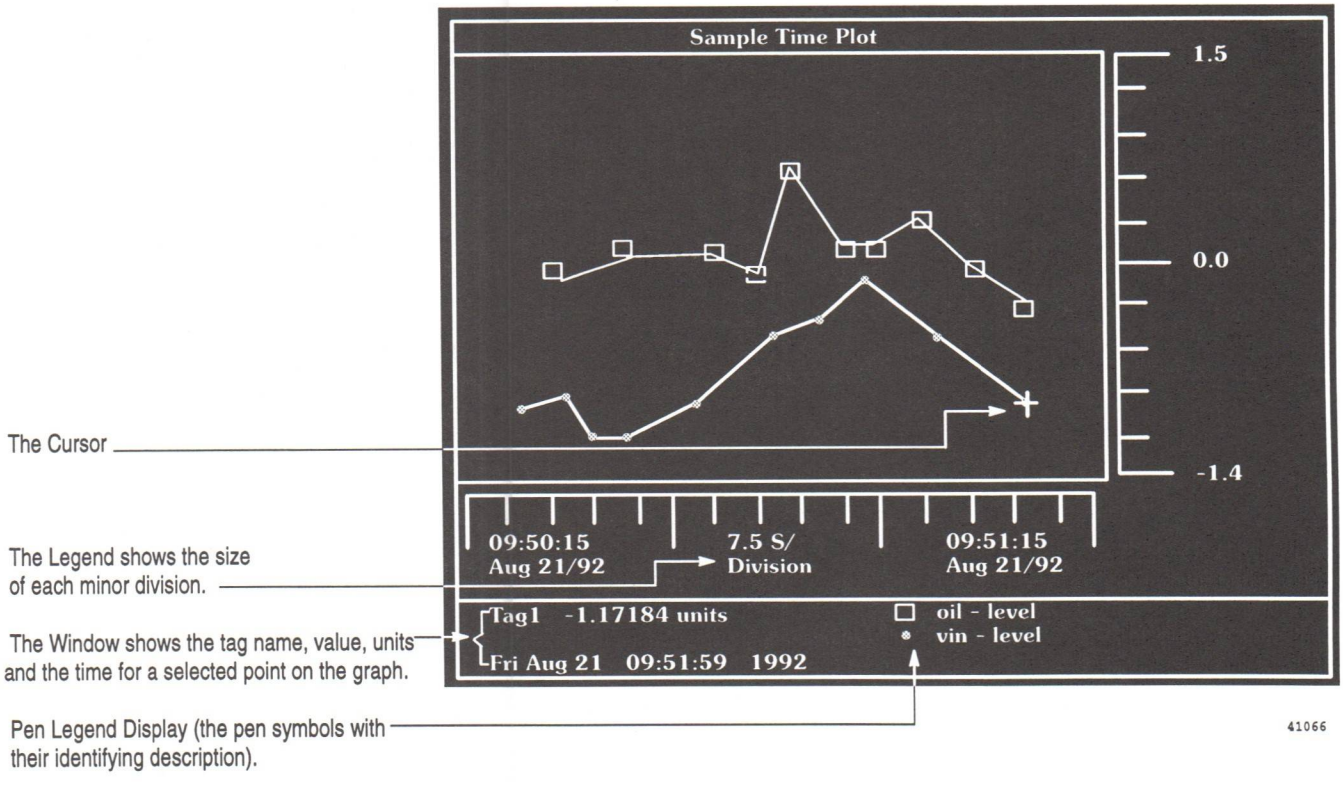
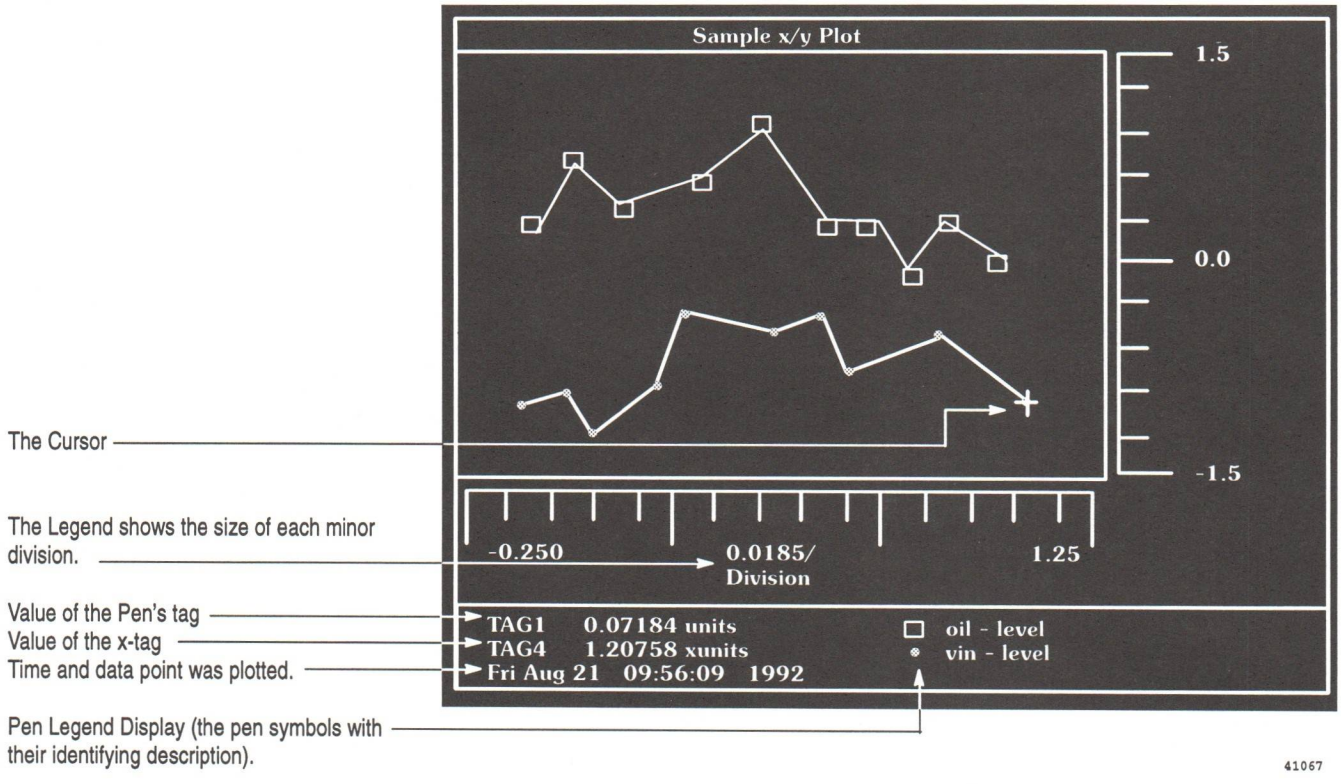


**Figure 3.3**
**An x/y Trend Display**




## Pen Changes

If several pens appear on a trend display, you can use the cursor to highlight any pen and get details on it. When you switch pens, the cursor moves to the new pen, the vertical axis changes to reflect the minimum and maximum values for that pen, and the axis and information window change to the color of the selected pen. Use the + or – keys to change pens.

**Important:** If the selected pen is shaded it may cover other pens or shading on the screen and consequently obscure other information.

## Past Recall

When sections of a graph scroll out of view off the edge of the screen into the trending buffer, you can move them back into view. The buffer holds up to 200 points in memory. Use the arrow keys, **Home**, **End**, **PgUp**, and **PgDn** to view different sections of the graph.

**Important:** Trending will not redraw the entire graph each time you depress a key. If, for example, you hit the key four times, the graph will start drawing immediately in response to the first action. Meanwhile the other three key depressions will be backing up in the buffer. When the first drawing is complete, the graph will redraw, this time reflecting the total effect of the final three key depressions.

## Display Hold

A real time trend display automatically updates the graph as the database values change. So, if you have moved a section of the graph into view and the value changes, the display will jump to the end of the line to plot the new value on the graph. To hold a display in view without the continual movement, use the hold key. When you are finished viewing, press the hold key again. Use the * key to hold the display.

## Zoom

You can change the resolution of the graph, by stretching or shrinking its vertical or horizontal axes to see a section of the graph in greater detail or to get a general view. When the cursor is on, zooming changes the axis for the current pen alone; when the cursor is off, zooming changes the axis for the whole graph.

If the scale factor has been set to 1, no zooming will occur.

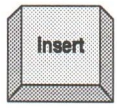
Use **Ctrl** and the arrow keys to zoom in and out.

**Important:** The entire graph is not redrawn each time you press the zoom key. Key presses are stored in a buffer, and the final drawing will reflect the total number of key presses.

When using keys to enter a sequence of past recall or zoom commands, some of the commands in the sequence may not be executed if the sequence is keyed in too rapidly. The last command in the sequence will always be executed. These features are designed to save you time but you may want to experiment with them to pinpoint the reaction time of the system.

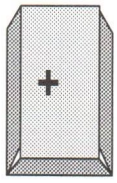
## Keys

### Controlling the Cursor




Turn the cursor on or off.

The following keys only affect the cursor when the cursor is turned on.



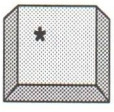

Move cursor to the next pen or subplot.


Move cursor to the previous pen or subplot.


Move the cursor one page to the right.


Move the cursor one page to the left.

### Holding the Display




Hold or restart the display.

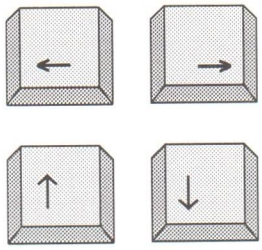
### Shifting the Display


View the most recent time on the display.


View the oldest time on the display.

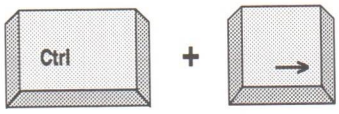

Shift the display 90% to the right.


Shift the display 90% to the left.

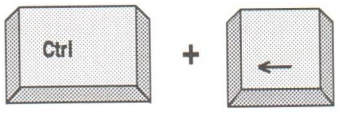


Shift the display 10% in the direction of the arrow.

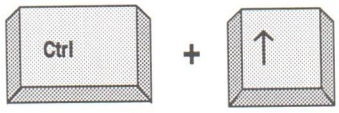
### Zooming the Display



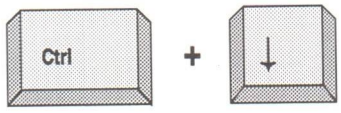

Increase the detail along the X axis.




Decrease the detail along the X axis.




Increase the detail along the Y axis.




Decrease the detail along the Y axis.

### Redrawing the Display


Redraw the display.

## Trending and Data Logger Files

Data Logger uses a circular file set. This means that Data Logger uses a series of files, and when it fills up the last file in the set, it begins overwriting data in the first file. However, if Trending is using the Data Logger file set as its source of data while Data Logger is writing data to the same file set, then Data Logger won't overwrite data in the first file. Instead, Data Logger will create an additional file, using up more disk space than was originally configured.

Each time Data Logger creates a new file, it will ask if you want to delete the extra "backlog" of files. The backlog of files is only deleted when the operator responds to this prompt.

**Important:** To make sure you don't run out of disk space when running both Data Logger and Trending, have an operator available. The operator can then make sure the old files are overwritten.

Appendix A

# Trending Commands

## PLOT

**PLOT** [*file*] [*options*]

Calls up a trend display. If no parameters are specified, a list of trend displays pops up; you can then run any of the trend displays listed.

| | |
|---|---|
| [*file*] | The name of the trend display. If you specify optional tag names, but omit the name of the trend display, the display called DEFAULT is loaded. |
| [*options*] | These may include one or more of the following parameters. The parameters override the settings already defined for the display. |
| /X*nnn* | Sets the x coordinates of the trend display to *nnn* pixels from the left edge of the screen. Range is 0 to 640. |
| /Y*nnn* | Sets the y coordinates of the trend display to *nnn* pixels from the top edge of the screen. Range is 0 to 640. |
| /S*nnnnn* | Specifies how often the trend display is updated. The rate can be from 1 to 32767 seconds. |
| /d[file] | Where [file] is the name of a Data Logger file set. Naming a file forces the Trend Display to retrieve data from that log file (the file must be in the correct Data Logger directory, as defined in Data Logger). Omitting the [file] parameter forces the trend display to retrieve data from the loaded database. |
| /start<time> | Where <time> specifies the new start time. The syntax for the time is the same as that for the *Start Time* field in the Trend Editor. See Chapter 2, *Defining a Trend Display* for details of this syntax. |
| /t<tag> | Where <tag> is the name of a tag in the database or log file. This tag will be used as the source of data for a pen. You can have up to sixteen /t<tag> parameters; the first one names the tag used by the first pen, the second /t<tag> names the tag used by pen 2, and so on. |
| /l<legend_size> | Where <legend_size> is the number of lines in the pen legend display at the bottom of the trend window. Valid values are in the range 3-16 or 0 (for no pen legend display) This tag over-rides the value set in the Define Trend Display window. |
| /i | overrides the interval setting defined for the plot |

/f freezes the display. Only the points between the start time and the end of the specified interval will be shown on the graph. The /f parameter should only be used with Data Logger log files

---

### Examples: The PLOT Command

**PLOT**

with no parameters, lists all the trend displays available. You can plot any of the displays in the list.

**PLOT salad /l4**

plots the trend display named salad and adjusts the pen legend display size to 4 lines.

**PLOT salad /start Oct 19 1992 13:20 /dsalad**

plots the trend display named *salad* and uses data from the SALAD log file starting at October 19, 1992 1:20pm.

**PLOT salad /tvin.level /toil.level**

plots the trend display named *salad* and uses the tag vin.level for pen 1 and oil.level for pen 2.

**PLOT salad /i 1 min /f**

displays all snapshots recorded for a period of one minute for the trend named *salad.*

---

## TREND

**TREND** [*file*]

Calls up the Trend Editor window showing the current settings for the filename, if specified.

[*file*] The name of the trend file to be edited.

## Symbols



## A



## B



## C



## D



## E



## F



## G

## Y



## Z

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